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(pg.6)

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       RAW SEQUENCE LISTING              DATE: 08/17/2004
       PATENT APPLICATION:  US/10/049,515    TIME: 10:31:35

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 3  <110> APPLICANT: PLOWMAN, GREGORY D.
 4        WHYTE, DAVID
 5        MARTINEZ, RICARDO
 6        HILL, RONALD
 7        FLANAGAN, PETER
 8        LIOUBIN, MARIO
10  <120> TITLE OF INVENTION: NOVEL PROTEIN PHOSPHATASES AND DIAGNOSIS AND TREATMENT
11        OF PHOSPHATASE-RELATED DISORDERS
13  <130> FILE REFERENCE: 034536-0726
15  <140> CURRENT APPLICATION NUMBER: 10/049,515
16  <141> CURRENT FILING DATE: 2002-06-14
18  <150> PRIOR APPLICATION NUMBER: PCT/US00/22158
19  <151> PRIOR FILING DATE: 2000-08-11
21  <160> NUMBER OF SEQ ID NOS: 45
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27  <212> TYPE: DNA
28  <213> ORGANISM: Mus sp.
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33  cggcacctgg tgtccctgac ggagcgcgga cccccctcaca gtgacagctg tcccggcctc 180
34  acgctgcacc gaatgcgcat ccctgacttt tgcccgccgt ccccggaaca gatcgaccaa 240
35  tttgtgaaga tcgtggacga ggccaatgcc cggggagagg ctgttggagt gcactgtgcc 300
36  ctaggctttg gccgcactgg caccatgcta gcctgctact tggtgaagga gcgggctttg 360
37  gccgcaggag atgccattgc tgagatccgg cgcctgcgac caggatccat tgagacgtat 420
38  gaacaggaga aggccgtctt ccagttctac cagcgaacaa aatgaggact tcaacaagcc 480
39  cgcctttccc cctccccaac tcctgcggcc agggaggaag gggagtgaac taaagtactg 540
40  catccttcag gtccctctga ctcctattgg acaaaagtag tccttccccca aagccataac 600
41  gtggccggca ggatggccga gaccccacaa aaatgaggta ataactgata agaactcatc 660
42  accgctgcat agcatgtaca cagcactccc aatacatctg ggtggttgaa aagac     715
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46  <211> LENGTH: 150
47  <212> TYPE: PRT
48  <213> ORGANISM: Mus sp.
50  <400> SEQUENCE: 2
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54  Ala Gly Leu Ala Leu Pro Arg Leu Pro Ala His Tyr Gln Phe Leu Leu
55              20                  25                  30
57  Asp Gln Gly Val Arg His Leu Val Ser Leu Thr Glu Arg Gly Pro Pro
58              35                  40                  45
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Input Set : A:\34536726.app
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60 His Ser Asp Ser Cys Pro Gly Leu Thr Leu His Arg Met Arg Ile Pro
61     50                       55              60
63 Asp Phe Cys Pro Pro Ser Pro Glu Gln Ile Asp Gln Phe Val Lys Ile
64  65                  70              75                  80
66 Val Asp Glu Ala Asn Ala Arg Gly Glu Ala Val Gly Val His Cys Ala
67                  85              90                  95
69 Leu Gly Phe Gly Arg Thr Gly Thr Met Leu Ala Cys Tyr Leu Val Lys
70              100             105             110
72 Glu Arg Ala Leu Ala Ala Gly Asp Ala Ile Ala Glu Ile Arg Arg Leu
73          115             120             125
75 Arg Pro Gly Ser Ile Glu Thr Tyr Glu Gln Glu Lys Ala Val Phe Gln
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78 Phe Tyr Gln Arg Thr Lys
79 145                 150
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84 <212> TYPE: DNA
85 <213> ORGANISM: Mus sp.
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89  tgcaccgccg cctttcgcgc gcgtcgcccc cgcgctcttc atcgggaatg cgcgagccgc 120
90  gggtgcgacg gagctgctgg tgcgcgcggg catcactttg tgcgtcaatg tctcccgcca 180
91  gcagcccggg ccgcgcgcgc ccggagtggc ggaactacgc gtacccgtgt cgacgaccc 240
92  agctgaggac ctgctgacac acctggagcc cacctgtgcc gccatggaag ccgcggtgcg 300
93  cgacggcggc tcctgtctcg tgtactgcaa gaacggccgc agtcgctcag ccgccgtctg 360
94  caccgcctac ctaatgcggc accgcggcca cagcctggat cgcgccttcc agatggtgaa 420
95  gagcgcccgc ccggtagccg agcccaattt ggggttctgg gctcagctgc agaagtacga 480
96  gcagaccctt caggcccagg ccatcctgcc ccgggagccc attgatccgg agtaagccga 540
97  ctgttcggct gctgggtgac caagcgtcta tactgaaagg aagtgtccct tccctccttt 600
98  ttctattagg cagctggctt gggtgttgc cccatcttga tggtagtaca ggaacgtcta 660
99  ctgagtagga ggacttcgtt tattcatcat gtttggacca aatccaaacc agcacgtttt 720
100 aggtagagaa attgagtgaa ggatagtctg ggaagcctac gaacggttga tagcgagtga 780
101 tagatcagag tcctagctgc ctactccaag ggagtgcctg ggtttgtagg cagaacctat 840
102 ctgtctcctg aacttctggt cccttagaaa tgaacataga gtctcccagc aggagctcat 900
103 gggcccacct ttggcttaca gctgctgtgc catggaaggg aggccgtgca gactgcagct 960
104 gagcgact                                                       968
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108 <211> LENGTH: 163
109 <212> TYPE: PRT
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116 Ala Leu Phe Ile Gly Asn Ala Arg Ala Ala Gly Ala Thr Glu Leu Leu
117              20              25              30
119 Val Arg Ala Gly Ile Thr Leu Cys Val Asn Val Ser Arg Gln Gln Pro
120          35              40              45
122 Gly Pro Arg Ala Pro Gly Val Ala Glu Leu Arg Val Pro Val Phe Asp
123      50              55              60
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Input Set : A:\34536726.app
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125 Asp Pro Ala Glu Asp Leu Leu Thr His Leu Glu Pro Thr Cys Ala Ala
126  65                  70                  75                  80
128 Met Glu Ala Ala Val Arg Asp Gly Gly Ser Cys Leu Val Tyr Cys Lys
129                  85                  90                  95
131 Asn Gly Arg Ser Arg Ser Ala Ala Val Cys Thr Ala Tyr Leu Met Arg
132              100                 105                 110
134 His Arg Gly His Ser Leu Asp Arg Ala Phe Gln Met Val Lys Ser Ala
135          115                 120                 125
137 Arg Pro Val Ala Glu Pro Asn Leu Gly Phe Trp Ala Gln Leu Gln Lys
138      130                 135                 140
140 Tyr Glu Gln Thr Leu Gln Ala Gln Ala Ile Leu Pro Arg Glu Pro Ile
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143 Asp Pro Glu
146 <210> SEQ ID NO: 5
147 <211> LENGTH: 1067
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149 <213> ORGANISM: Mus sp.
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153 agatcctgcc gggcctgtac attggcaact tcaaagacgc aagagatgca gaacagttga 120
154 gcaggaacaa ggtgacacac attctttctg tgcacgatac tgccaggccc atgttggagg 180
155 gagttaaata cctgtgtatt ccagcggcag acacaccatc tcaaaacctg acaagacatt 240
156 tcaaagaaag cattaaattc attcatgagt gccgactcca gggtgagagc tgtcttgtac 300
157 attgcctggc tggggtctcc aggagtgtga cattggtgat cgcatacatc atgactgtca 360
158 ccgactttgg ctgggaagat gccttgcaca ctgttcgtgc ggggaggtcc tgtgccaacc 420
159 ccaacctggg ctttcaaagg cagctgcagg agtttgagaa acatgaagtg caccagtatc 480
160 ggcaatggct gagagaagag tatggagaga accctttgcg ggatgcagaa gaagccaaaa 540
161 atattctggc tgccccggga attctgaagt actgggcctt tctcagaaga ctgtaatgta 600
162 cctgaagttt ctgaaatatt gcaaagttca ggctggtgct gccaaaaaga aaagtgatgt 660
163 aaagtttatt tttaagaatc caatagtgat ttgtatactt gttttttttt cattttaaac 720
164 caaatgcatg tataatcatg ttggaatatg ttaagatcta tggatattct gtagcaagag 780
165 aaaatatctt tgccttaact ccactgctgt ggttgttcct tggacctgac cgatgctcat 840
166 acaataatct caagagccct gtctgtttcg taatagtaac tacttctcat gaacactacc 900
167 caaggaggaa gcctgcacct gggaagtgtg cagtgtgagc tctgccctcc tgttaagttc 960
168 tccagctcta gacatgtctc ttggtgtgtg tttatctac tggtgttatt ctatatggta 1020
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173 <211> LENGTH: 184
174 <212> TYPE: PRT
175 <213> ORGANISM: Mus sp.
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181 Phe Lys Asp Ala Arg Asp Ala Glu Gln Leu Ser Arg Asn Lys Val Thr
182              20                  25                  30
184 His Ile Leu Ser Val His Asp Thr Ala Arg Pro Met Leu Glu Gly Val
185          35                  40                  45
187 Lys Tyr Leu Cys Ile Pro Ala Ala Asp Thr Pro Ser Gln Asn Leu Thr
188      50                  55                  60
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```
190 Arg His Phe Lys Glu Ser Ile Lys Phe Ile His Glu Cys Arg Leu Gln
191  65                   70                   75                   80
193 Gly Glu Ser Cys Leu Val His Cys Leu Ala Gly Val Ser Arg Ser Val
194                   85                   90                   95
196 Thr Leu Val Ile Ala Tyr Ile Met Thr Val Thr Asp Phe Gly Trp Glu
197                  100                  105                  110
199 Asp Ala Leu His Thr Val Arg Ala Gly Arg Ser Cys Ala Asn Pro Asn
200             115                  120                  125
202 Leu Gly Phe Gln Arg Gln Leu Gln Glu Phe Glu Lys His Glu Val His
203         130                  135                  140
205 Gln Tyr Arg Gln Trp Leu Arg Glu Glu Tyr Gly Glu Asn Pro Leu Arg
206 145                  150                  155                  160
208 Asp Ala Glu Glu Ala Lys Asn Ile Leu Ala Ala Pro Gly Ile Leu Lys
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216 <211> LENGTH: 597
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218 <213> ORGANISM: Mus sp.
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223 gccacactga cccacatcaa tgaggtctgg cccaaccttt tcttgggaga tgcgtatgct 180
224 gccagagaca agggtcgtct aatccagctg ggcattaccc atgttgtgaa tgtggctgcg 240
225 ggcaagttcc aggtggacac aggtgccaag ttctaccgtg aacacctct  ggagtactat 300
226 ggcattgagg ctgatgacaa ccccttcttt gacctcagcg tccactttct gcctgttgct 360
227 cgttacatca gagatgccct caatattccc cgaagccgag tgctggtcca ctgcgctatg 420
228 ggggtgagtc gctctgccac aattgtcttg gccttcctca tgatcttcga gaacatgaca 480
229 ctggtagatg ccatccagac ggtgcaggcc caccgagata tctgtcccaa ctcaggcttc 540
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240  1               5                   10                  15
242 Ala Val Gln Val Ser Pro Tyr Gln Pro Pro Thr Leu Ala Ser Leu Gln
243                  20                   25                   30
245 Arg Leu Leu Trp Val Arg Arg Thr Ala Thr Leu Thr His Ile Asn Glu
246          35                   40                   45
248 Val Trp Pro Asn Leu Phe Leu Gly Asp Ala Tyr Ala Ala Arg Asp Lys
249      50                   55                   60
251 Gly Arg Leu Ile Gln Leu Gly Ile Thr His Val Val Asn Val Ala Ala
252  65                   70                   75                   80
254 Gly Lys Phe Gln Val Asp Thr Gly Ala Lys Phe Tyr Arg Gly Thr Pro
255                  85                   90                   95
257 Leu Glu Tyr Tyr Gly Ile Glu Ala Asp Asp Asn Pro Phe Phe Asp Leu
```

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258                     100                  105                  110
260 Ser Val His Phe Leu Pro Val Ala Arg Tyr Ile Arg Asp Ala Leu Asn
261         115                  120                  125
263 Ile Pro Arg Ser Arg Val Leu Val His Cys Ala Met Gly Val Ser Arg
264         130                  135                  140
266 Ser Ala Thr Ile Val Leu Ala Phe Leu Met Ile Phe Glu Asn Met Thr
267 145                  150                  155                  160
269 Leu Val Asp Ala Ile Gln Thr Val Gln Ala His Arg Asp Ile Cys Pro
270                     165                  170                  175
272 Asn Ser Gly Phe Leu Arg Gln Leu Gln Val Leu Asp Asn Arg Leu Arg
273                 180                  185                  190
275 Arg Glu Thr Gly Arg Leu
276             195
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280 <211> LENGTH: 828
281 <212> TYPE: DNA
282 <213> ORGANISM: Mus sp.
284 <400> SEQUENCE: 9
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286 accagggtga ccacgctaac tggaaagaaa cttatagaaa cctgggaaga tgccacagtt 120
287 catgttgtgg agacagagcc cagcggtggg ggtggttgtg gctatgtgca ggaccttacc 180
288 ttggacctgc aagttggcgt tattaagccc tggttgcttc tggggtcaca ggatgctgct 240
289 catgacctgg agctactgag aaagcataag gtgactcata ttctcaatgt tgcatatgga 300
290 gttgaaaatg ctttcctcag tgagtttaca tataagacca tttctatact ggatgtgcct 360
291 gaaaccaata tcctgtctta ttttccagaa tgttttgagt ttattgagca agcaaaactg 420
292 aaggatggcg tggttctcgt gcactgtaat gcaggtgttt ccagggctgc tgcaattgtc 480
293 attggcttcc tcatgagttc tgaagaagcc actttcacca ctgccctgtc gttggtgaaa 540
294 gaggcgagac catccatatg tccgaatcct ggcttcatgg aacaactccg cacctaccaa 600
295 gtaggcaagg agagcaatgg aggtgacaaa gtgcccgcgg aggacacgac cggtggtctg 660
296 tgatctgtac tccagcagag gcaaacgact tctgcatcag actctgtcct cttgcctgtg 720
297 ttttggaagg aaacttggaa aacttccctt ttctgttgtc ttttaccagt ggaaatgaac 780
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303 <212> TYPE: PRT
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310 Arg Lys Gln Cys Thr Arg Val Thr Thr Leu Thr Gly Lys Lys Leu Ile
311             20                  25                  30
313 Glu Thr Trp Glu Asp Ala Thr Val His Val Val Glu Thr Glu Pro Ser
314         35                  40                  45
316 Gly Gly Gly Gly Cys Gly Tyr Val Gln Asp Leu Thr Leu Asp Leu Gln
317     50                  55                  60
319 Val Gly Val Ile Lys Pro Trp Leu Leu Leu Gly Ser Gln Asp Ala Ala
320 65                  70                  75                  80
322 His Asp Leu Glu Leu Leu Arg Lys His Lys Val Thr His Ile Leu Asn
323             85                  90                  95
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 08/17/2004
PATENT APPLICATION: **US/10/049,515**   TIME: 10:31:36

Input Set : **A:\34536726.app**
Output Set: **N:\CRF4\08172004\J049515.raw**

lease Note:
se of n and/or Xaa have been detected in the Sequence Listing. Please review the
equence Listing to ensure that a corresponding explanation is presented in the <220>
o <223> fields of each sequence which presents at least one n or Xaa.

eq#:11; N Pos. 39
eq#:29; N Pos. 1954,2010,2032
eq#:41; N Pos. 57

VERIFICATION SUMMARY   DATE: 08/17/2004
PATENT APPLICATION: **US/10/049,515**   TIME: 10:31:36

Input Set : **A:\34536726.app**
Output Set: **N:\CRF4\08172004\J049515.raw**

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L:1093 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:1920
L:1094 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:1980
L:1881 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0